

Process for the production of polyunsaturated fatty acids in plants

## 5 Abstract

The present invention relates to a method for the production of fatty acid esters which comprise unsaturated fatty acids with at least three double bonds, and to free unsaturated fatty acids  
10 with a content of at least 1% by weight based on the total fatty acids present in the plants, by expressing at least one nucleic acid sequence which encodes a polypeptide with  $\Delta 6$ -desaturase activity and at least one nucleic acid sequence which encodes a polypeptide with  $\Delta 6$ -elongase activity. Advantageously, these  
15 nucleic acid sequences can, if appropriate, be expressed in the transgenic plant together with a third nucleic acid sequence which encodes a polypeptide with  $\Delta 5$ -desaturase activity.

The invention furthermore relates to the use of defined nucleic  
20 acid sequences which encode polypeptides with a  $\Delta 6$ -desaturase activity,  $\Delta 6$ -elongase activity or  $\Delta 5$ -desaturase activity selected from a group of nucleic acid sequences, and/or to the use of nucleic acid constructs comprising the abovementioned nucleic acid sequences.

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